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ABSTRACT

This study was designed to identify the goal approach behaviors which distinguish first-graders with a successful achievement orientation from equally competent first-graders with an unsuccessful orientation. Based on scores of test anxiety and expectancy for success, 100 boys were designated either success-oriented or fail-threatened and then given seven intellectual-academic goal approach measures under high or low arousal conditions. Regardless of achievement orientation, boys under high arousal persisted longer at a difficult task than boys under low arousal. Measures of resistance to distraction and following instructions accounted for the majority of intercorrelations among the measures. (Author/JMB)

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Achievement Orientation and Intellectual-Academic Goal Approach Behavior in First-Grade Boys[1]

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There is a large body of research on academic achievement; however, little is known about the effort or the goal approach behaviors which mediate the relation between ability and motivational variables and actual level of performance in achievement situations. Most investigators continue to be concerned with performance competence, as indexed by various grades or test scores, rather than with the effort which leads to such performance. Variables typically used to predict performance level are of three types: demographic (social class, race, and the like); motivational (measures of achievement motivation, test anxiety, or expectancy for success); and/or intellectual (academic grades or scores on intelligence or aptitude tests).

The demographic variables are status rather than process variables; they are of little use in understanding how or why a particular level of academic performance was or was not attained. From numerous studies there is evidence that a number of the intellectual ability variables are useful in predicting academic success. However, it is clear that ability per se, without at least minimal effort in an academic achievement situation, is not likely to lead to successful performance. And it is equally clear that measures of "ability" also presume at least a minimal degree of "effort," and thus operationally confound the two. In addition, it has recently been suggested that the goal approach behaviors which lead to success may be more determined by motivational and situational factors than by skills and abilities per se (V. C. Crandall & Battle, 1970). Indeed, Battle (1966) found

that a number of motivational variables such as attainment value and expectancy for success were superior to I. Q. scores in the prediction of actual academic performance. Therefore, it seems likely that such variables might also be useful in identifying the goal approach behaviors which are implicated in performance.

Information concerning the relation between motivational variables, goal approach behaviors, and performance is generally scattered and often contradictory. Generalizations from studies of academic performance have, in the past, been of somewhat greater help in describing factors associated with poor, rather than successful performance. For summaries of this literature, the reader may wish to see Lavin (1965), Kornrich (1965), Pervin, Reik, and Dalrymple (1966), Summerskill (1962), Taylor (1964), and Torrance and Strom (1965).

The question remains: how do motivational variables influence the performance of a competent individual? That is, when a given individual possesses the ability to succeed at an academic task and is motivated to do so, what approach behaviors on his part will lead to successful performance? It seems clear that some approach behaviors are requisite for all academic tasks, regardless of the differences among them. For example, unless the outcome of a task is purely dependent upon chance factors, such behaviors as attention and persistence are necessary for success. If this is true, then, individual differences in approaches to academic tasks, which are surely developed, must coexist along with approach behaviors or patterns of behaviors which are characteristic of all successful individuals.

The major focus of the present study is the identification of the goal approach behaviors used by successful individuals in dealing with intellectual academic achievement tasks. The study does not focus upon either (a) the differences in approach behaviors which exist among the successful

individuals; or (b) the differences which exist in the behaviors required for success on different achievement tasks. Instead, the study is designed as an exploration of some approach behaviors thought to be necessary for success on all intellectual-academic achievement tasks.

To the extent that the foregoing assumptions are correct, there exist approach behaviors which distinguish competent individuals who are successful in academic achievement situations from equally competent individuals who are not. It is assumed that the goal approach behaviors under question are learned, that they are, in essence, strategies of approach which can be discriminated both from the information necessary for task completion and from the cognitive processes which may be used in dealing with the task. (such as abstraction or integration, for example).

A major focus of the present study is the investigation of these goal approach behaviors in the performance of young children. Despite the fact that few investigators studying achievement behavior have used young children as subjects, the value of a developmental approach seems obvious. Approaches to intellectual or academic tasks have a developmental history which begins early in the life cycle. Certain achievement attitudes and behaviors appear in the early years of school and remain relatively stable through age 14 (Kagan & Moss, 1962). And, since most children enter school by the age of five or six, reliance upon studies of adult subjects to understand the genesis and dynamics of achievement behaviors is particularly inappropriate. Because of the considerable data on discrepancies among the motivation and performance measures for women (French & Lesser, 1964; Horner, 1968; Klinger, 1966), it was decided to use only male subjects.

Independent Variables

The use of young children as subjects constrains the selection of both

independent and dependent measures in obvious ways. Projective measures of achievement motivation have been found to be inappropriate for young children, and no satisfactory adjustments in administration or scoring have been devised (Crandall, et al., 1962; McClelland, 1958b). For this reason, projective measures were not employed. Instead, measures of Test Anxiety and Expectancy for Success were used.

Expectancy for Success

Expectancy for Success, deemed important by both McClelland and Crandall, is indeed positively related to success in academic tasks for seventh, eighth, and ninth graders. In contrast to McClelland's procedures, Crandall elicits an Expectancy of Success measure from each subject; there is not experimenter norm. Because her tasks are novel, they provide a general measure of the subject's Expectancy for Success on intellectual tasks rather than a prediction based upon past performance on the specific task. In addition, they are designed for use with young children. For these reasons, Crandall's measure of Expectancy for Success was used to select subjects for the present experiment.

Test Anxiety

Anxiety has been used in many studies of achievement motivation (Atkinson, et al., 1960; Atkinson & Litwin, 1960; Feather, 1961, 1963; Little, 1963; Litwin, 1966; Mahone, 1960) and has been found to be important in predicting the academic performance of older elementary school children (Hill & Sarason, 1966; Sarason, et al., 1964). Since the Test Anxiety Scale for Children (Sarason et al., 1960) is designed for measuring young children's anxiety about school performance, it was chosen over other more general measures which are not likely to correlate as highly with school performance.

Thus the subjects were selected on the basis of their levels of expectancy for success on intellectual tasks, and their anxiety about school performance. This particular combination of measures, although used by none

of the previous investigators, was deemed most appropriate for studying academic achievement behavior in young children. Subjects with high expectancy and low anxiety scores were designated Success-Oriented; those with low expectancy and high anxiety were classified as Failure-Threatened. This general procedure has been used previously by investigators who typically employ one of the projective measures of n Achievement (Atkinson, et al., 1960; Atkinson & Litwin, 1960, Feather, 1961, 1963; Litwin, 1966, Mahone, 1960).

Achievement Arousal. In many studies of achievement, motivation differences in the behavior of high or low motivation groups were evident only under conditions of achievement arousal. Noticeable differences were not present under either relaxed conditions or conditions involving only external incentives (See Klinger, 1966, for a review). For this reason, it was decided to investigate the differences between the groups under both high- and low-arousal conditions.

Dependent Variables

The use of young subjects also restricts the kinds of tasks that can be used to detect differences in goal approach behaviors. Happily, some of the approach behaviors which have been suggested by previous investigators can be translated into tasks appropriate for young children. Persistence is one of these. Both Atkinson (Atkinson & Litwin, 1960), V. C. Crandall (1965), and others have found persistence to be a major correlate of achievement behavior. Other behaviors suggested by Atkinson are speed and quantity of performance output, typically in simple tasks. Unlike learning tasks, the content of performance tasks is not so important as the subjects' motivation to perform and ability to resist distraction; nothing more may be required than completing simple addition problems or marking Xs in rows of

circles (Atkinson & Raphelson, 1955; Atkinson & Reitman, 1956; Johnston, 1957; Lowell, 1952; Williams, 1955).

In addition, Freidrichs, et al., (1971) found that measures of attention and following instructions yielded several positive correlations with learning tasks for their four-and five-year-old subjects. It seems likely that both of these tasks are measures of behaviors required for success in academic achievement situations, regardless of individual or task differences. For these reasons, Attention and Following Instructions tasks were selected for the study.

In addition to the Persistence, Resistance to Distraction, Attention and Following Instructions tasks, two other tasks were developed especially for the study. The first was a measure of Information-Seeking by the subjects. Given that children are of equal intellectual ability, differences in their performance may be due in part to the strategies they have developed in seeking the information necessary for solving the problem at hand. To this end, a task was developed to assess children's ability to seek out information relevant to a problem solution.

Amount of time and intensity of striving in intellectual free-play activities have been predicted by measures of Intellectual Attainment Value, Intellectual Achievement Responsibility, Expectation of Success, and Achievement Standards (V. J. Crandall, et al, 1962). To some extent then, the tendency to choose an intellectual achievement task over non-intellectual or non-achievement activities is related to motivational variables and may be related to performance on given tasks. For this reason, a task was designed to determine the subject's willingness to select a task with standards for performance over a non-evaluative task.

In addition to each of the six individual goal approach tasks described above, the degree of relation among such tasks for each achievement orientation group was also of interest. Are behaviors such as attention and persistence related for a given achievement group at this early age? In studies of learning, the interrelations among different tasks have tended to be very low for preschool children (Freidrichs, et al., 1971) as well as for elementary school children (Stevenson et al, 1968; Stevenson et al., 1970; Stevenson & Odom, 1965). Thus there seems to be no generality of learning skills. For this reason it was expected that the generality among approach behaviors would also be low. If this were the case, it would mean that successful performance on intellectual-academic tasks is due to a number of different behaviors. In order for children to successfully mobilize their ability and their motivation they would need to acquire a number of different approach behaviors.

Summary

In summary, the purpose of the present investigation was the identification of goal approach behaviors used by young children with different orientations to achievement . First-graders were selected in order to assess the effect of orientation upon approach behavior in boys just beginning school. Subjects were selected on the basis of a composite (Expectancy and Anxiety) score and achievement arousal level was experimentally manipulated. It was predicted that under high achievement arousal, Success-Oriented subjects would attain higher scores on the goal approach measures than Failure-Threatened subjects. In addition, the relations among the various goal approach measures were assessed for each achievement orientation group.

Method

Selection Procedures

Selection procedures were formulated in order to obtain a final total of 100 first-grade boys, half of whom would be Failure-Threatened subjects, and half of whom would be Success-Oriented subjects. The Test Anxiety Scale for Children and the Defensiveness Scale for Children were administered to 33 first-grade classes following the procedures given by the authors (Sarason, Davidson, Lighthall, Waite, & Ruebush, 1960; Sarason, Hill, and Zimbardo, 1964). Following these tests, a number of subjects were eliminated from the study on the basis of their defensiveness scores. It was decided to eliminate boys who were in the top quartile because it was expected that a great deal of defensiveness on the part of subjects would lead to distortions in their responses on the Test Anxiety Scale for Children. For example, it was expected that highly defensive boys who were also test anxious might deny their feelings of anxiety, thus obtaining uncharacteristically low scores on the measure of anxiety. Of the 380 boys tested, ¼ or 95 were eliminated, leaving 285 possible subjects for the remainder of the study. All subjects below the median on the Test Anxiety Scale for Children were designated Low Anxiety subjects and all those above the median as High Anxiety subjects.

Several weeks following the initial testing, after the scoring had been completed, the second set of selection procedures was administered individually to 274 boys, with absenteism accounting for the 11 boys not tested. Measures of each subject's Expectancy for Success in intellectual achievement situations were obtained from two tasks previously used with first, second, and third grade children by V. J. Crandall and his associates (1962).

Expectancy for Success

Memory for objects. In this task, each subject is asked to estimate whether he will be able to recall all the items in a group after seeing them for only a few seconds. The objects are small, familiar items. There are eight groups of items which range in number from three objects, the easiest, to 12 objects, the hardest. The subject is asked to estimate his success on the groups in increasing order of difficulty.

Mazes. In this task, each subject is asked to predict his success at solving each of eight mazes of graduated difficulty. The means of presentation is similar to that for the Memory for Objects task.

Each of the two tasks is thus presented to the subject in eight graduated levels of difficulty. The levels are selected so that the "easiest" level is clearly one which each subject perceives as extremely easy for boys his age, and the "hardest" one is perceived as very difficult. The subject is told that he will subsequently be tested on the task and is asked to predict how well he will do. The subject's expectancy for success is defined as the most difficult level at which he predicts that he will be successful. The Expectancy for Success score used for selection purposes was the average of each subject's estimates on the two tasks. Subjects with scores below the median were designated Low Expectancy and those above were designated High Expectancy. For the major part of the study, subjects were designated Failure-Threatened or Success-Oriented on the following basis:

> Failure-Threatened Subjects: subjects above the median score on the Anxiety measure and below the median score on the Expectancy measure
>
> Success-Oriented Subjects: subjects below the median score on the Anxiety measure and above the median score on the Expectancy measure.

Assignment to Groups

The goal of the assignment procedures was the formation of four groups of 25 subjects each, by combining each of the two achievement orientations with each of the two levels of arousal, thus yielding the following groups: Failure-Threatened subjects under Low Arousal, Failure-Threatened subjects under High Arousal, Success-Oriented subjects under Low Arousal, and Success-Oriented subjects under High Arousal.

As a result of administering the Anxiety, Defensiveness, and Expectancy measures, there were 152 subjects eligible for the major portion of the study, for which 100 subjects were required. Of these 152 subjects, 78 were Failure-Threatened according to the selection procedures used, and 74 were Success-Oriented.

At this point in the testing, the potential subjects in each achievement orientation group were alternately assigned to one of the two arousal conditions--Low Arousal or High Arousal. Before testing began the groups were reviewed for initial differences in I.Q. scores; there were no such differences. As the study was nearing completion, the groups were reviewed a second time to ensure that attrition had not resulted in significant differences among the groups.

Controls for possible differences in results due to order of task presentation were instituted. Within each of the four experimental groups, each subject performed the tasks in a different order from all the other subjects in that group.

Arousal Conditions

Implementation of the arousal conditions occurred immediately prior to the presentation of the six goal approach tasks. Subjects in the Low Arousal

Condition were given a low-key task orientation. For them, the tasks were called games, and they were told that the Experimenter just wanted "to find out more about the games." Subjects in the High Arousal condition were given a test-oriented approach. They were told that their performance on the "tests" was very important and that they should try very hard to do well.

Goal Approach Tasks

On each of these tasks, the only procedure that variedamong the subjects was the presentation of different instructions to implement the desired arousal conditions. The Experimenter sat directly across a table from the child during the session, which lasted approximately 40 minutes.

Persistence. The subject was presented with two difficult wooden puzzles composed of five abstract pieces, all painted the same color. He was told that he could have as much time as he wanted to work on the first puzzle but that, if he were having difficulty at any time, he could switch to the second one. The first puzzle was described by the Experimenter as "fairly easy" for him. From the need Achievement studies, it had been suggested that this procedure should lead to greater persistence by the Success-Oriented subjects (Feather, 1966).

A subject's score was the length of time, in seconds, that he worked on the puzzle. A maximum of six minutes was allowed.

Following Instructions. In this task, the subject was presented with a large board on which were painted a river, several roads, and a landing strip. Two small wooden houses and a bridge were attached to the board. The objects used in the task were toy pigs, horses, cows, ducks, chickens, airplanes, cars and trucks. The task had six parts, each of which involved following a more complex set of instructions to be carried out with the small toys. A total of 41 points was possible, one for each component of the directions correctly carried out.

Attention. The subject was seated in front of a rear projection screen and told to press the signal button whenever he saw a picture of a green ball. Interspersed randomly among 65 slides were 15 identical slides of the green ball. The 50 remaining slides were colored drawings of common objects, some of which were painted green like the ball, and some of which were other colors. Each slide appeared for .5 seconds. An electronic sensing device indicated both correct and incorrect responses on a counter. The maximum score was 15.

Resistance to distraction. For this task the subject remained seated at the table with the screen to the front and left of him, approximately three feet away. He was given a pencil and an 8" x 10" sheet of paper mimeographed with rows of small geometric figures (circles, squares, and triangles). He was told that his task was to put an X in each of the circles on the sheet. The Experimenter mentioned that she would be viewing a set of slides different from the ones the subject had seen. She then activated the projector, simultaneously indicating to the subject that he was to begin. Throughout the task, a series of 84 colored slides were flashed on the screen at the rate of one every two seconds. A wide variety of slides were used, including pictures of space men, an amusement park, and scenes from Hawaii. The score on the task was the number of X marks the subject placed in circles, minus the number of marks placed in other figures. The maximum correct number was 188.

Seeking relevant information. In this task, the subject was asked to complete another difficult five-piece abstract wooden puzzle. Also placed in front of him, above the puzzle, were three 8½" x 11" green paper booklets which were shown to him. One of the booklets contained drawings of the puzzle the subject was to work. The first page showed a picture of the

child's puzzle with one piece correctly placed, the second page showed that piece plus a second one correctly placed, and so forth. By matching his placement of pieces to that of the pieces in the pictures, the subject could solve the puzzle by looking at no more than three pictures after the first.

In another book there was a set of similarly sequenced drawings of a different abstract puzzle. A third book contained cartoon-like pictures depicting a story sequence, similar to those given as tasks on the Weschler Intelligence Scale for Children. Each of these booklets was open so that the first page was clearly visible to the subject. He was told that he was to solve the puzzle, but that at certain times he would be allowed to choose a book, turn to a new page, and then continue working on the puzzle.

During the task, the experimenter signalled the subject at 30-second intervals. At that time the subject was allowed to choose one of the books, turn to a new page, and return to work on the puzzle until the next signal from the Experimenter. The score was the number of times (of four) that the subject chose the appropriate book. If he solved the puzzle after choosing the puzzle at least once, but not taking the maximum number of trials, his score was the number of times he selected correctly, plus the remaining number of trials that he did not require. This procedure was followed in order to avoid penalizing those subjects who selected the correct booklet, and then quickly solved the puzzle.

Task choice. In this task the subject was presented with a set of colored blocks from the block design task of the Weschler Intelligence Scale for Children. He was given the choice of using them on one of two different tasks--one with an obvious achievement element, and one without. If the subject chose the achievement-oriented task (which required him to copy a design with the blocks), he was given a score of 1. If he chose the task "with no right and no wrong way to do it," he was asked to make a design with the blocks. This choice was given a score of 0.

Initially, a two-way analysis of variance was computed on the I.Q. scores to check the effectiveness of the assignment procedures. There were no significant differences on the I.Q. scores among any of the four experimental groups.

Analysis of Treatment Effects

To determine if achievement orientation under either motivation condition had any effect upon goal approach behavior, a two-way analysis of variance was performed on the data for each of the seven goal approach scores. Only for performance on the Persistence task was there a main effect, and this result was due to arousal condition. Regardless of achievement orientation, boys under High Arousal persisted longer at a difficult task than boys under Low Arousal. There was no significant effect of achievement orientation on any of the seven goal approach scores. The analysis of variance of Persistence scores is presented in Table 1; the means and standard deviations of the Persistence scores for each of the four groups can be found in Table 2.

Interrelations Among Goal Approach Measures

A second purpose of the study was to investigate the relations among the different intellectual goal approach measures. For this purpose, a correlation matrix was computed for each of the four experimental groups.

For the Success-Oriented subjects the degree of relation among the variables is generally low and nonsignificant. As expected, there is a significant negative correlation between the two scores for the Attention task ($r = -.82$, $p < .01$, 2t for Low Arousal; $r = -.97$, $p < .01$, 2t for High Arousal). That this relation is not perfect can be attributed to the fact that it was possible for a subject to attain the maximum correct score on the target slides, and either a high or a low error score, depending upon his response to the non-target slides. Only two additional correlations are significant. For the subjects in the Low Arousal condition, the ability

TABLE 1

Analysis of Variance of Persistence Scores for Failure-Threatened and Success-Oriented Subjects under Low and High Arousal

Source	DF	SS	MS	F
Achievement Orientation	1	30102.24	30102.24	2.57
Arousal Level	1	77562.19	77562.19	6.61*
Achievement Orientation X Arousal	1	6352.06	6352.06	0.54
Error	96	1125645.00	11725.47	

*$p < .01$, two-tailed.

TABLE 2

Mean Correct Responses and Standard Deviations for Persistence Scores for Failure-Threatened and Success-Oriented Subjects under Low and High Arousal

Achievement orientation		Arousal condition: Low	Arousal condition: High
Failure-Threatened	$\bar{X}$	130.92	202.56
	s	80.19	109.98
Success-Oriented	$\bar{X}$	181.56	221.32
	s	101.82	134.20

to Resist Distraction was positively related to the ability to Persist at a difficult task (r = +.51, p < .01, 2t). Under the High Arousal condition, there was an inverse relation between the ability to Follow Instructions and the tendency to select an Achievement Task over one having no performance standards (r = -.54, p < .01, 2t). That is, the greater a subject's ability at following a sequence of instructions, the less he tended to select an achievement task. In general, the number of correlations which were significant does not exceed that expected by chance.

In contrast to the data for Success-Oriented subjects, there are a number of significant intercorrelations for Failure-Threatened subjects (Tables 3 and 4). Again, the two Attention scores are inversely correlated. Aside from these measures, two other measures account for all other significant correlations. For the subjects under Low Arousal, Resistance to Distraction was related positively to the Attention-Correct score (r = +.53, p < .01, 2t) and negatively to the Attention-Incorrect score (r = -.60, p < .01, 2t). For the subjects under High Arousal, the ability to Resist Distraction was related positively to the ability to Persist at a difficult task (r = +.46, p < .05, 2t) and positively to Task Choice (r = +.48, p < .05, 2t). In addition, the ability to follow a sequence of instructions was related positively to both Seeking Information (r = +.40, p < .05, 2 t) and Attention-Number Correct (r = + .40, p < .05, 2t) and inversely to Attention-Number Incorrect (r = -.52, p < .01, 2 t).

Relations Among I.Q. Scores and Achievement Measures

The correlations between I.Q. scores and the goal approach measures are presented in Tables 5 and 6. Since the range of the I.Q. scores was restricted, the test for correlations among the variables was conservative.

The data for the Success-Oriented subjects are presented in Table 5. For the subjects in the Low Arousal condition, I.Q. was not related to any

TABLE 3

Relations (r's) Among Goal Approach Measures for Failure-Threatened Subjects in the Low Arousal Condition (N = 25)[a]

	Task Choice	Seeking Relevant Information	Resistance to Distraction	Attention-Number Correct	Attention-Number Incorrect	Following Instructions
Persistence	+.32	-.31	-.16	-.18	+.15	-.30
Following Instructions	-.23	+.18	-.06	+.34	-.32	
Attention-Number Correct	+.27	+.16	+.53**	-.90**		
Attention-Number Incorrect	-.31	-.10	-.60**			
Resistance to Distraction	+.14	+.24				
Seeking Relevant Information	-.11					

[a] If $r = .396$, $p < .05$, two-tailed.

** $p < .01$, two-tailed.

TABLE 4

Relations (r's) Among Goal Approach Measures for Failure-Threatened Subjects in the High Arousal Condition ($N = 24$)[a]

	Task Choice	Seeking Relevant Information	Resistance to Distraction	Attention-Number Incorrect	Attention-Number Correct	Following Instructions
Persistence	+.04	.00	+.46*	-.13	+.26	+.37
Following Instructions	+.17	+.40*	+.16	-.52**	+.40*	
Attention-Number Correct	+.13	+.11	+.10	-.71**		
Attention-Number Incorrect	-.33	+.01	-.10			
Resistance to Distraction	+.48*	+.13				
Seeking Relevant Information	+.25					

[a] If $r = .396$, $p < .05$, two tailed.

* $p < .05$, two-tailed.

** $p < .01$, two tailed.

TABLE 5

Relations (r's) Between I.Q. and Goal Approach Measures for Success-Oriented Subjects under Low and High Arousal[a]

	Task Choice	Seeking Relevant Information	Resistance to Distraction	Attention-Number Correct	Attention-Number Incorrect	Following Instructions	Persistence
Low Arousal (N = 25)	.00	+.32	-.21	+.05	-.11	-.01	-.19
High Arousal (N = 25)	-.03	+.07	-.11	-.54**	+.56**	+.24	+.05

[a] If $r = .396$, $p < .05$, two-tailed.

**$p < .01$, two-tailed.

TABLE 6

Relations (r's) Between I.C. and Goal Approach Measures for Failure-Threatened Subjects under Low and High Arousal[a]

	Task Choice	Seeking Relevant Information	Resistance to Distraction	Attention-Number Correct	Attention-Number Incorrect	Following Instructions	Persistence
Low Arousal (N = 25)	-.39	-.13	-.23	+.46*	-.33	+.43*	-.20
High Arousal (N = 25)	+.19	+.31	+.47*	-.23	+.40*	+.16	+.21

[a] If r = .396, p < .05, two-tailed.

* p < .05, two-tailed.

of the goal approach scores. However, for those subjects in the High Arousal condition, I.Q. scores were significantly related to both Attention scores. The higher a subject's I.Q., the more correct answers and the fewer incorrct answers he attained. The relation of I.Q. to Attention is apparent only during situations of High Arousal.

For the Failure-Threatened subjects, I.Q. score was related to three of the goal approach scores (See Table 6). Under conditions of Low Arousal, I.Q. was related positively to both Attention-Incorrect ($\underline{r}$ = +.46, $\underline{p}$ < .05, 2$\underline{t}$) and to Following Instructions (r = +.43, $\underline{p}$ < .05, 2$\underline{t}$). Under High Arousal, it was positively correlated both with Resistance to Distraction ($\underline{r}$ = +.47, $\underline{p}$ < .05, 2$\underline{t}$) and to Attention-Correct ($\underline{r}$ = +.40, $\underline{p}$ < .05, 2$\underline{t}$). Thus, for these groups of young boys, I.Q. is not a strong predictor of any of the goal approach behaviors studied.

Discussion

Treatment Effects

The major result of this study is to establish persistence as a behavior characteristic of young boys in high achievement arousal situations. It is evident from the data presented that even by the first year of elementary school, boys given achievement arousal instructions are willing to persist at a difficult task significantly longer than their relaxed peers. Indeed, it now seems that persistence is well established as an important aspect of achievement behavior for both adults and children.

Investigators using projective measures of $\underline{n}$ Achievement have found that highly motivated adults persist longer on academic examinations (Atkinson & Litwin, 1960; Smith, 1964) and difficult pattern-learning problems (French & Thomas, 1958). Expectancy for Success on difficult reasoning problems is positively related to persistence on them (Feather, 1961, 1963). There are

similar results using children as subjects. Battle (1966) found persistence related positively to Expectancy for Success and Minimal Goal Certainty on difficult mathematical problems. Persistence is also related positively to a measure of children's belief in their own control over and responsibility for their intellectual successes and failures (V.C. Crandall, 1965). In these investigations arousal level was not a variable. Subjects were given only instructions on how to perform the task.

In a number of other studies, however, arousal level has been found to be an important factor. Klinger (1966) reported positive relations between n Achievement and performance in ten out of fifteen studies in which tasks were administered under arousal instructions. This result, based on studies of adults, seems independent of sex of subjects as well as of the projective instrument or the task used. Few, if any, investigators of children's achievement behavior have employed different arousal conditions; the results of the present study confirm the arousal effect both for young children and for persistence.

What is surprising in the present study is the failure to find differences in behavior due to achievement orientation. Contrary to the hypothesis, achievement orientation was not related to any of the goal approach scores under either arousal condition. One explanation seems most likely. Achievement orientation may not be well enough established by age seven to influence goal approach behavior. This was the position of Sarason and his colleagues (Hill & Sarason, 1966; Sarason, et al., 1964) in relation to Test Anxiety. Their research on this point proved inconclusive, but it was noted that most of the significant correlations between first-grade Test Anxiety scores and other measures occurred for girls.

This result of the present study fails to support the early establishment of achievement orientation or its effect on behavior proposed by several researchers (Heckhausen, 1968; Kagan & Kogan, 1970; Kagan & Moss, 1962).

On the other hand, the present results do not necessarily conflict with their position. Achievement orientation may be developed quite early, and yet only later come to effect other behaviors in a systematic way. Evidently, the subjects used in the present study were too young for this to have occurred. Kagan and Moss (1962) stated that prior to school entrance, the establishment of goal-related responses in these areas is still in flux, (p.154). Evidently, one year in school is not sufficient experience for motivational dispositions to become stabilized.

Also, the temporal nature of such development may vary for different aspects of achievement orientation. As suggested earlier, expectancy that one will do well may be developed and stabilized prior to anxiety over performance in school. If this is true, then the use of the combined (Expectancy-Anxiety) measure may have worked against the effects which might have been produced by expectancy alone. The use of expectancy as a single measure of the achievement orientation of first graders is suggested as a procedure for future studies. It is clear that expectancy is predictive for children in the eighth grade and above (Battle, 1966; Crandall & McGhee, 1968), but its usefulness as a measure for first graders has not been determined. It may be that expectancy alone is a predictor for first graders, or that this relation develops later.

Goal Approach Behaviors

Of the seven goal approach scores, only Persistence was related to arousal level. In general there were almost no differences among the four subject groups on the measures; indeed on several tasks the mean scores of the groups are virtually identical. It is clear that the other measures selected did not differentiate subjects according to achievement orientation or arousal level. Why should this be the case? In general, the tasks were not too easy for the subjects. Data on the means reveal that only on the Seeking Information and Task Choice scores was there a possibility of a

subjects. Although they did not approach the maximum number correct, they made very few errors. They made errors of omission (not responding to correct slides) rather than commission (responding to incorrect slides). This may indicate that the main skill being tested was speed of response.

The tasks did not discriminate by achievement orientation or arousal level, and yet they were not too easy for the subjects. Basically, any group of subjects performed as well as any other. Since ability was to some extent controlled in the study (I.Q.), the tasks other than Persistence may have been related more to the general developmental and ability levels of first graders. This hypothesis seems more applicable to some of the measures than others. The Following Instructions task clearly involves memory, an ability tested by most measures of intelligence. However, the explanation seems less applicable to the Resistance to Distraction task which was a simple performance measure. Nevertheless, the question remains --why should persistence be affected by arousal level?

Persistence

It was originally hypothesized that all of the goal approach behaviors studied were common to challenging intellectual tasks and thus would be acquired by the more highly achievement-oriented subjects. From the data presented, it seems that by first grade, achievement orientation (at least the composite measure used here) is not yet related to goal approach behavior. Yet arousal level was related to goal approach behavior--specifically to persistence.

It may be that there are relatively few general approach behaviors, such as persistence, and that they are learned early as appropriate responses in situations of achievement arousal even before achievement orientation is stabilized. Arousal thus affects only these approach behaviors directly; otherwise the task outcome is dependent upon task-specific variables.

Another reason for the failure to find arousal effects on the other approach behaviors may be that they are not as easily taught, or as readily learned as is persistence. The proposal here is that persistence is a behavior learned quite early by children, even prior to the development of achievement orientation. The processes by which persistence is learned are assumed to be those of modeling and reward. It is relatively easy for the child to witness a parent or sibling continuing to work at a difficult task. It seems more difficult for him to know whether a model is following instructions or paying close attention to the task. Similarly, because persistence is a more visible, easily detected behavior, it is more feasible for adults to point out and reward a child's continuing to work on a difficult task than his paying attention to the task. The existence of this proposed difference between persistence and the other behaviors would help to account for the results of the present study.

Interrelations Among Goal Approach Measures

There were few significant interrelations among the goal approach measures for the Success-Oriented subjects. Under conditions of Low Arousal, Persistence was positively related to Resistance to Distraction. While it is not surprising to find these two measures positively correlated, other equally understandable relations were not found. For these subjects under High Arousal, Following Instructions was inversely correlated with Task Choice. It is not at all clear why the ability to follow instructions should be negatively related to selecting an achievement task. For the Success-Oriented subjects in general, the number of significant intercorrelations did not exceed that expected by chance. And the relations which were significant seemed no more logical than many which were not.

There were more intercorrelations among the measures for Failure-Threatened subjects. Under Low Arousal, Resistance to Distraction was positively correlated with Attention-Correct and negatively correlated with Attention-Incorrect. Although both of these correlations are in the expected direction, there is little about the nature of these measures to suggest why they, and not others, were related to each other. However, it is of interest that the Resistance to Distraction measure was related to other measures for both groups of subjects under Low Arousal. The ability to resist distraction when working on a task under relaxed conditions is related to other behaviors in the predicted direction.

Under High Arousal, there were a numbr of intercorrelations among the measures. Resistance to Distraction was related to Task Choice. Subjects who were able to continue working on a task were also likely to select an achievement over a non-achiev ement task. Following Instructions was related in the expected direction to Seeking Information and to the two Attention measures. The number of intercorrelations among scores for this group of subjects is puzzling. These are the most anxious subjects in a state of High Arousal--a situation expected to produce highly disorganized behavior.

The goal approach measures used in this study were not highly intercorrelated for either group of subjects. Similar results have been found by other investigators (Birney, 1959; V. C. Crandall, et al, 1965; Solomon, 1969; Solomon, et al., 1971). In four of these studies, young children were used as subjects. One explanation for the results may be that these behaviors are still being acquired and may be modified by later experience in ways that would make them more meaningfully related to one another. However, in studies of learning ability (Freidrichs, et al., 1971; Stevenson, et al., 1970) different learning and performance measures were found to be independent of one another in both preschool and elementary school children. The prevalence of low correlations among most of the measures in the present study

indicates a high degree of differentiation among achievement behaviors. Indeed, the number of correlations which occurred might well have been due to chance factors alone. In addition, there were no logical patterns evident in those which did occur. This result casts doubt on the validity or utility of a "trait" description or explanation of achievement behavior. Indeed, one is led to conclude that, like learning ability, the achievement behavior of young children is comprised of a number of distinct behaviors having little relation to one another. Although the motivational variables of Expectancy and Anxiety may become more related to approach behaviors as the child develops, the relations among different approach behaviors may remain quite low.

Achievement Orientation Measures

Two important points may be raised about the selection measures used in the present study. First, the subjects were selected on the basis of median scores--boys with low Expectancy and high Anxiety or the opposite. The results cannot be generalized to groups of children who differ from these. Investigators using adult subjects have typically found High-High or Low-Low groups to have scores between those of the Low-High or High-Low groups (Atkinson & Litwin, 1960) but there is no corresponding evidence for groups of children. The present study does not provide information relevant to High Expectancy-High Anxiety or Low Expectancy-Low Anxiety children.

A second point is that the Expectancy-Anxiety measure used in this study is unique. It was elected for a number of reasons which made it most useful with young subjects. From the research based on the McClelland-Atkinson model, it is clear that both expectancy and anxiety are important influences on adult achievement behavior. Sarason and his associates have obtained evidence that anxiety is important, at least by the third grade. First grade

anxiety scores were correlated with some second grade achievement scores (for girls) and with most fourth grade measures for both sexes. Expectancy was also suggested as an important variable from the work of Crandall and her associates, and a measure suitable for young children was available. Thus, although the present study was not designed as an attempt to validate the theory of either Atkinson or Crandall, it does relate to them in an important way. The selection measures used were suggested by the research which has been conducted relevant to them. Despite the fact that the composite achievement orientation measure was not related to approach behavior, the study did demonstrate the importance of persistence in achievement behavior in young children. This finding is common to both theoretical perspectives as well as to data from older children and adults.

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Footnotes

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